Docket No.: A-2645

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MAIL STOP: APPEAL BRIEF-PATENTS

By: ______________________ Date: February 18, 2004

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences

Applic. No.	:	09/775,041 Confirmation No.: 8338
Inventor	:	Daniel Flament
Filed	:	February 1, 2001
Title	:	Method and Device for Removing Particles From Webs Of Material
TC/A.U.	:	3724
Examiner	:	Omar Flores Sanchez
Customer No.	**:**	**24131**

Hon. Commissioner for Patents
Alexandria, VA 22313-1450

BRIEF ON APPEAL

S i r :

This is an appeal from the final rejection in the Office action dated October 28, 2003, finally rejecting claims 4, 5 and 7-17.

Appellants submit this *Brief on Appeal* in triplicate, including payment in the amount of $330.00 to cover the fee for filing the *Brief on Appeal*.

Real Party in Interest:

This application is assigned to Heidelberger Druckmaschinen AG of Heidelberg, Germany. The assignment will be submitted for recordation upon the termination of this appeal.

Related Appeals and Interferences:

No related appeals or interference proceedings are currently pending which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

Status of Claims:

Claims 4-5 and 7-17 are rejected and are under appeal. Claims 1-3, 6 and 18-21 are withdrawn from further consideration.

Status of Amendments:

No claims were amended after the final Office action. A *Notice of Appeal* was filed on December 29, 2003.

Summary of the Invention:

As stated in the first paragraph on page 1 of the specification of the instant application, the invention relates to a method and a device for removing particles from webs of material, for example from single-layer or multilayer webs of material which, printed, respectively, on the top and

bottom sides thereof, move past variably positionable slitting devices.

Appellant explained on page 11 of the specification, line 19, that, referring now to the drawings and, first, particularly to Fig. 1 thereof, there is shown therein a driven slitting cutter 1, which rotates about an axis of rotation 2. The cutter 1 is disk-shaped and cooperates with a mating or counter cutter 3. At the cutting location 4 extending in the conveying plane of the web of material 5, the single-layer or multilayer web of material 5, which is moving past, is slit. Depending upon the thickness of the single-layer or multilayer web of material 5 which is to be separated longitudinally in the web travel direction 6, the slitting tools 1, 3 can preferably be brought towards one another or moved away from one another by cutting-depth adjustment devices (not shown in more detail here).

Appellant outlined on page 12 of the specification, line 7, that, according to the web travel direction 6, which could also extend in the vertical direction or may be reversed by 180°, the web of material 5, in the exemplary embodiment shown in Fig. 1, runs through an opening 9 which lies in the web travel plane. The opening 9 allows the single-layer or multilayer web of material 5 to pass through a spindle carrier

10 wherein there is a vacuum box 11 which extends perpendicularly to the web travel direction 6, and has a subatmospheric pressure, indicated by the arrows, prevailing therein. The vacuum box 11 is provided with an opening 11.2 which is closed off by flexible elements 17 which are arranged so that they stand upright and, in an undeflected state, extend in the vertical direction. The flexible elements 17 may, for example, be constructed as upright brushes, a number of which, in the illustrated exemplary embodiment, have been deflected by a deflection angle bracket 19, which is formed on a deflection finger 13, towards the mutually cooperating cutting tools 1 and 3.

As set forth on page 13 of the specification, line 1, the deflection finger 13, which is formed by a deflection angle bracket 19 which has been angled off through 90°, is attached to a bearing plate 18. The illustrated deflection angle bracket 19 is angled off at a 90° angle, however, this angle bracket could also be arranged at a different angle from 90° in the deflection finger 13. The deflection finger 13 can be arranged so that it is easy to exchange on the bearing plate 18 by an attachment element or fastener 14; it is readily possible to exchange the deflection finger 13 with a deflection angle bracket 19 which is formed with a specific rounding 25 (note Fig.2) on the bearing plate 18, for example,

in order to generate a suction zone 26 (note Fig. 3) of different geometry.

It is also stated on page 13 of the specification, line 15, that, through the intermediary of a drive 15, which is only diagrammatically represented in Fig. 1, the bearing plate 18 can be moved, for example, by a spindle drive 16, perpendicularly to the plane of the drawing in Fig. 1; the fact that the deflection finger 13 is held on the bearing plate 18 means that it is also moved parallel to the axis of rotation 2 of the cutting blade 1, perpendicularly to the plane of the drawing. As a result, the suction zone 26 is generated, opposite the cutting point 4 in the web travel plane, it being possible for the suction zone 26 to be symmetrical to the cutting point 4.

Appellant described on page 14 of the specification, line 1, that the shape of the vacuum box 11 of the suction system 23 is selected so that a delimiting or boundary wall 11.1 and the opening 11.2 allow space for the arrangement of a deflection finger 13 on the bearing plate 18, optimum utilization of space beneath the web of material 5 being desired, on the one hand, and the installation of a deflection finger 13 which generates a sufficiently dimensioned suction zone 26, on the other hand, being possible. The farther the deflection angle

19 which deflects the flexible brushes 17, for example, is oriented towards the roots of the brushes, the farther the flexible elements 17 can be deflected towards the outlet pocket of the mutually cooperating cutting tools 1 and 3, and the farther a suction zone 26 which is established in accordance with the position of the cutting point 4 extends.

Appellant further described on page 14 of the specification, line 16, that, furthermore, it can be seen from the plan view of the device according to the invention for removing particles which is shown in Fig. 2 that the suction zone 26, at which the subatmospheric pressure generated in the vacuum box 11 in accordance with Fig. 1 is present, lies inside the zone where the web of material 5 leaves the slitting zone 27. The slitting cutter 1 which is rotating about the axis of rotation 2 cooperates with the mating or counter cutter 3, which is only diagrammatically depicted here, in order to make a cut in single-layer or multilayer webs of material 5. Both slitting tools 1 and 3 are held on the bearing plate 18 shown in Fig. 1.

Appellant explained on page 15 of the specification, line 4, that the instant the bearing plate 18 shown in Fig. 1 changes position transversely with respect to the web travel direction 6, in the direction of displacement indicated by the

double-headed arrow 20 by the drive 15, it is displaced relative to the vacuum box 11, which is held in a stationary position. Because the opening 11.2 of the vacuum box is closed off by the flexible, deflectable brush elements 17, a deflected brush region 21 is always produced opposite the slitting zone 27 by the deflection finger 13, due to the fact that the latter is coupled to the bearing plate 18 on which the driven slitting elements 1 and 3 are also held. As a result, the paper dust which is formed during the slitting of the single-layer or multilayer webs of material 5 can be sucked out immediately at the location where it is formed without any possibility of it being entrained by the boundary layers which are being formed and are present at the top and bottom sides of the web of material and, in this way, being conveyed away undesirably. If the suction system 23 is connected to a controllable vacuum source, the subatmospheric pressure in the vacuum box 11 can be adjusted according to the number of layers in the web of material 5 being slit in the slitting zone 27, so that it is possible to adapt the suction air flow which removes the particles to the amount of particles which is to be expected to form as a function of the number of webs of material to be cut.

As set forth on page 16 of the specification, line 4, it is believed to be apparent from the plan view of the vacuum box

11 according to Fig. 2 that the particles are removed through the laterally provided connection pieces 12. Suction connections may be connected to these connection pieces, in which case the two connection pieces 12 may be acted upon either via a common vacuum source or via, respectively, a separate vacuum source. The opening 11.2 on the front of the suction box 11 is delimited by two edges 11.3, in front of which the undeflected region 22 of the brush elements 17 extends with an orientation perpendicular to the web travel direction 6 and parallel to the axis of rotation 2. Furthermore, the rounding 25 on the deflection angle bracket 19 of the deflection finger 13 can be seen from the plan view shown in Fig. 2. In addition to the illustrated rounding 25, the deflection angle bracket 19 may also be constructed with an oval contour or may have a contour which allows another suitable deflection-region configuration. Depending upon the selected contour on the deflection angle bracket 19 of the deflection finger 13, a suction zone 26 which projects into the outlet region of the mutually cooperating cutting tools 1 and 3 is established. The suction zone 26 is established automatically during the movement, which is initiated by remote control, of the slitting tools 1 and 3 in the direction of displacement 20 transversely with respect to the travel direction 6 of the web of material, without further action on the part of the pressman. The vacuum box 11 can easily be

removed laterally from the opening in the spindle carrier 10 in order to perform cleaning tasks, and furthermore the deflection finger 13 on the bearing plate 18 can be removed and replaced by a deflection finger 13 of different geometry.

Appellant stated on page 17 of the specification, line 9, that, although only one slitting device is shown in Fig. 2, it is possible for a plurality of such units to be provided over the width of a single-layer or multilayer web of material 5, in order to combine individual web strands for copies which are to be produced according to type and format. It is also possible for the slitting devices 1 and 3 to approach respective preset positions, which are fixed as a function of format, as part of the presetting of the rotation by a central control unit.

Appellant outlined in the last paragraph on page 17 of the specification, line 19, that the solution which is proposed in accordance with the invention allows the extraction of the particles which may form during the slitting to take place directly where they are formed, without the occurrence of any entrainment of the particles by the boundary layer which forms on the top side 7 and the bottom side 8 of the web of material 5 and, in this way, being conveyed away. At web velocities of approximately 15 m/s, particles contained in the boundary

layer on both sides of the web of material 5 can be removed only by a suction air flow with a velocity in the order of magnitude of approximately 25 m/s. However, a high suction air velocity of this nature requires corresponding blowers and corresponding drive work which, with the solution proposed according to the invention, can advantageously easily be economized on or saved.

It is described on page 18 of the specification, line 9, that Fig. 3 shows a different embodiment with a semicircular support which encompasses the deflection elements.

It is further described on page 18 of the specification, line 12, that analogous to the illustration which has already been discussed with regard to Fig. 1, the web of material 5 runs in the web travel direction 6 and, at the cutting point 4, is cut in the longitudinal direction by the cutters 1 and 3 which cooperate with one another. After leaving the cutting zone between the cooperating cutters 1 and 3, the web of material 5, which is conveyed in the web travel direction 6, passes into a suction zone 26, which may be formed, for example, by locally deflected brushes 17. In the illustration shown in Fig. 3, the brushes 17 are encompassed, in their deflected state, by a support 28 which is provided with a rounding 30 (note Fig. 4). The inclined rounding 30 inside the support 28

determines the maximum deflection in the deflected brush region 21 relative to the undeflected brush region 22.

Appellant stated on page 19 of the specification, line 1, that instead of the brushes shown in Figs. 1 and 3, respectively, it is also possible to provide elements which are displaceable inside one another in lamellar fashion and restrict the effected deflection region 21 by the deflection angle bracket 19. The elements which are displaceable inside one another in lamellar fashion may be made from plastics or other materials and are constructed so that the suction zone 26, which is illustrated in Fig. 2 and is configured approximately in the form of a roof tile, is formed.

Appellant further stated on page 19 of the specification, line 11, that, on the sides thereof, the support 28 encompassing the deflected brush region 21 is delimited or bounded by side faces 29 which, therebetween, enclose the rounding 30. The support 28, which is provided with an inclined support surface, is attached to the vacuum box 11 by the fastener 14.

It is also mentioned on page 19 of the specification, line 17, that a side view of the semicircular support is shown in Fig. 4.

Appellant outlined in the last paragraph on page 19 of the specification, line 18, that the support 28 has a rounded region 30 (note Fig. 5), which is constructed to run with an inclination 32 with respect to the horizontal. The base of the rounding 30, represented by broken lines in Fig. 4, may, for example, be constructed as a thin metal sheet which defines the maximum deflection of brushes 17 or the maximum displacement travel of lamellar delimiting elements.

Appellant explained on page 20 of the specification, line 1, that the support 28 is of crankshaped construction and is formed with a recess 33 wherein a delimiting or boundary wall 11.1 of the vacuum box 11 opens out, at which vacuum box the support 28 is held by an attachment element or fastener 14. The support 28 may be produced both as a metal component and as a component formed from plastic material.

As outlined in line 8 on page 20 of the specification, Fig. 5 is a plan view of the semicircular support shown in Fig. 4.

Appellant stated in the last paragraph on page 20 of the specification, line 11, that the support 28, whether it be a plastic or metal component, can be held on the vacuum box 11 (note Fig. 3) by an attachment element or fastener 14 which passes through the support in the region of the slots 31. In

the upper part of the support 28, the rounding 30, formed with an inclination 32, is shown, the base surface and the side faces 29, which are held thereon, of the rounding 30 serving to delimit or bound the maximum deflection of the brush-like or lamellar displacement elements. The support 28 with the recess 33, as illustrated in Figs. 4 and 5, rests on the delimiting wall 11.1 of the vacuum box 11, in a turner-bar superstructure disposed downline of the slitting device.

References Cited:

U.S. Patent No. 1,574,633 (Myover), dated February 23, 1926;

U.S. Patent No. 4,003,276 (Schmitt), dated January 18, 1977.

Issues:

Whether or not claims 4-5 and 7-17 are obvious over Myover in view of Schmitt under 35 U.S.C. §103.

Grouping of Claims:

Claims 4 and 16-17 are independent. Claims 5 and 7-15 depend on claim 4. The patentability of claims 5 and 7-15 are not separately argued. Therefore, claims 5 and 7-15 stand or fall with claim 4. Claims 16 and 17 do not stand or fall with claim 1.

Arguments:

In item 3 on page 2 of the above-mentioned Office action, claims 4-5 and 7-17 have been rejected as being unpatentable over Myover in view of Schmitt under 35 U.S.C. § 103(a).

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claims 4, 16, and 17 call for, inter alia:

> elements forming a suction zone;
>
> deflection elements movable parallel to an axis of rotation of the slitting devices for deflecting said elements, said deflection elements being coupled to the slitting devices. (Emphasis added.)

According to claims 4, 16, and 17 of the instant application, the deflection elements (13) are capable of deflecting elements (17) which form a suction zone (26).

The Examiner has not pointed out which element in Myover equates the deflection elements (13) according to the invention of the instant application. Although Myover discloses brushes 20, the brushes 20 do not form a suction zone. Although Schmitt may disclose a suction zone, the suction zone is not formed by brushes. There is no hint or suggestion in any of the cited references to provide elements

forming a suction zone, which are deflected by the deflecting elements.

The Examiner generally listed some of the elements from the cited prior art references without specifically stating how all the elements of the invention of the instant application have been disclosed or obviated by the references. The Examiner, therefore, has not established a prima facie case of obviousness of the claims of the instant application.

The Examiner has stated in item 4 on page 3 of the Office action that the features "deflection elements deflecting other element" and "dust collector in contact with the brushes" are not recited in the rejected claim(s). It is noted that "elements" and "deflection elements" are recited separately in claims 4, 16, and 17 of the instant application. As stated above, the claims call for "deflection elements ...for deflecting said elements." Therefore, it is accurate to state that according to the invention of the instant application deflection elements (13) deflect other elements (17) which are other than the deflection elements. It is also noted that "dust collector in contact with the brushes" is not a limitation of the claims of the instant application, rather a summary of what happens in the document Schmitt.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claims 4, 16, and 17. Claims 4, 16, and 17 are, therefore, believed to be patentable over the art and since claims 5 and 7-15 are ultimately dependent on claim 1, they are believed to be patentable as well.

In view of the forgoing, the honorable Board is therefore respectfully urged to reverse the final rejection of the Primary Examiner.

Respectfully submitted,

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For Appellant

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Appendix - Appealed Claims:

4. A device for removing from at least single-layer webs of material, particles formed by slitting devices arranged along a web travel path in a slitting zone, comprising:

elements forming a suction zone;

deflection elements movable parallel to an axis of rotation of the slitting devices for deflecting said elements, said deflection elements being coupled to the slitting devices.

5. The particle-removing device according to claim 4, wherein said elements forming said suction zone are constructed as flexible brushes.

7. The particle-removing device according to claim 4, wherein said elements forming said suction zone delimit an opening formed in a suction device.

8. The particle-removing device according to claim 4, wherein said deflecting elements are held on a bearing plate of one of the slitting devices.

9. The particle-removing device according to claim 8, including a drive for displacing said bearing plate in a given direction of displacement.

10. The particle-removing device according to claim 9, wherein said direction of displacement extends perpendicularly to the travel direction of the web of material.

11. The particle-removing device according to claim 7, wherein said suction device comprises a vacuum box with lateral vacuum ports.

12. The particle-removing device according to claim 7, wherein said suction device is formed with an opening covered by deflectable elements.

13. The particle-removing device according to claim 12, wherein said deflectable elements are arranged in rows.

14. The particle-removing device according to claim 4, wherein said deflection elements comprise a rounded contour.

15. The particle-removing device according to claim 14, wherein said deflection elements are capable of generating a suction zone lying in the web travel plane and extending into an outlet wedge of the mutually cooperating slitting devices.

16. A jobbing web-fed rotary printing machine having a device for removing from at least single-layer webs of material,

particles formed by slitting devices arranged along a web travel path in a slitting zone, comprising:

elements forming a suction zone;

deflection elements movable parallel to an axis of rotation of the slitting devices for deflecting said elements, said deflection elements being coupled to the slitting devices.

17. A newspaper rotary printing machine having a device for removing from at least single-layer webs of material, particles formed by slitting devices arranged along a web travel path in a slitting zone, comprising:

elements forming a suction zone;

deflection elements movable parallel to an axis of rotation of the slitting devices for deflecting said elements, said deflection elements being coupled to the slitting devices.